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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,523	11/26/2001	Tai-Cheng Yu		8526

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EXAMINER

VALENTIN, JUAN D

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,523

Applicant(s)

YU ET AL.

Examiner

Juan D Valentin II

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 18 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the detecting means receives signals from both the input and output ports? There is no supporting structure within the claim to provide for the limitation as claimed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 13, & 17-19 rejected under 35 U.S.C. 102(b) as being fully anticipated by Mao et al. (USPN '278, hereinafter Mao).

Claim 1

Mao discloses in conjunction with Fig. 1, an optical attenuator 100 for attenuating signals in an optical path, comprising an input port for receiving input signals from an input fiber 110 along the optical path, an output port for splitting the attenuated signals into two portions, and for transmitting one portion of the attenuated signals to an output fiber 165, also along the optical

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path, and for transmitting a second portion of the attenuated signals to a detecting means 130, at least one movable reflector (140 & 145) for receiving first signals output by the input port and reflecting a portion of said first signals into the output port, said detecting means 130 being positioned to receive said second portion of the attenuated signals from the output port, and a driving device (i.e. stepper motor) for driving the movable reflector in response to control signals from the detecting means (col. 2, line 40-col. 3, line 27). Applicant is particularly pointed to col. 2, lines 56-64, which give support for an output port for splitting the attenuated signals into two portions.

Claim 5

Mao as applied above further discloses wherein the output port comprises a second collimator (Fig. 1, ref. 150).

Claim 13

Mao in conjunction with Fig. 1, discloses an optical attenuator 100 for attenuating signals in an optical path, comprising an input port connected to an input fiber 110, the input fiber 110 being a component of the optical path, the input port being for receiving an input signals from the input fiber 110, an output port connected to an output fiber 165, the output fiber 165 also being a component of the optical path, the output port being for transmitting an output signal to the output fiber 165, at least one movable reflector (140 & 145) forming an optical connection between the input port and the output port, a detecting means 130 optically connected to the input port and to the output port and comprising components for detecting the intensity of optical signals from the input and output ports, circuitry for comparing the input signal to the output signal, and control circuitry, and a driving device (i.e. stepper motor) electrically connected to the control circuitry of said detecting means and mechanically engaged with the at least one

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movable reflectors, whereby the input port transmits a fraction of the input signal (3-5%), as a first control signal, to the detecting means and transmits the remainder of the input signal, as a first signal, to the at least one movable reflectors, the at least one movable reflectors direct the first signal toward the output port as a second signal, and some fraction of the second signal, determined by the relative spatial and angular geometry of the at least one movable reflectors, is received by the output port as a received signal, and the output port transmits one portion of the received signal as the output signal and transmits the remaining portion of the received signal as a second control signal, to the detecting means, the detecting means measures the intensities of the first and second control signals, makes a comparison of the intensities, and as a result causes its control circuitry to issue driving control signals to the driving device, which actuates the at least one movable reflectors to rotate, changing the intensity of the received signal at the output port (col. 2, line 40-col. 3, line 27). Applicant is particularly pointed to col. 2, lines 56-64, which give support for an output port for splitting the attenuated signals into two portions.

It is inherent that the stepper motor used to rotate the mirrors (140 & 145) of Mao are electrically connected to control circuitry of the light monitoring means 130, in order for there to be "feedback...provided to the motor...that rotates mirrors 140 and 145 to the control rotation angles....to provide an approximately constant output intensity for signals that do not provide constant intensity..." (col. 3, lines 10-16) as taught by Mao. Further, it is inherent that in order for the light monitors to judge the constant intensities at both the input and output ports, the intensities at both ports must be obtained, and then used to adjust the movable reflectors by a mechanically driven driving device i.e. stepper motors as taught be Mao.

Claim 17

Mao as applied above discloses wherein the output port comprises a second collimator and a splitter (col. 3, lines 56-64).

Claim 18

Mao discloses in conjunction with Fig. 1, an optical attenuator 100 comprising an input port receiving input signals from an input fiber 110, an output port transmitting output signals to an output fiber 165, a transmission device (140 & 145) positioned in a light path transmitted between the input and the output port, said transmission device adjustably attenuating port transmitted signals moving along said light path, a driving device (stepper motor) moving said transmission device for attenuation adjustment, and detecting means 130 receiving signals from the input port and those from the output port to define an attenuation ratio thereof for determining actuation of the driving device (col. 2, line 40-col. 3, line 27). Applicant is particularly pointed to col. 2, lines 56-64, which give support for an output port for splitting the attenuated signals into two portions.

The light monitoring means 130 are used to obtain intensities at both the input and output ports, this can be seen in (col. 3, lines 10-16) where Mao discloses “feedback...provided to the motor...that rotates mirrors 140 and 145 to the control rotation angles....to provide an approximately constant output intensity for signals that do not provide constant intensity...”, Mao is silent as to how exactly how those intensities are used in conjunction with each other to perform the attenuation corrections within the system. It is inherent that a ratio of the obtained input and output intensity signals must be used in order to determine whether a constant intensity is being provided through the system.

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Claim 19

Mao as applied above discloses an attenuator wherein the first port includes a first collimator 120 facing to said transmission device, and the second port includes a second collimator 150, different from the first collimator, facing to said transmission device (Fig. 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2-4, 6-12, 14-16, & 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Mao.

Claim 2

Mao as applied above discloses wherein the input port comprises a first collimator 120 and a filter 125 (Fig. 1). Mao discloses the claimed invention except for a filter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a filter as opposed to a beam splitter since the Examiner takes Official notice of the equivalence of a filter and a beam splitter for their use in the field of optical communications and the selection of any of these known equivalents to a filter would be within the level of ordinary skill in the art. Further, Mao discloses directing a "small percentage" (col. 2, lines 47-49) of the optical signal to the light monitoring means by way of beam splitter 125. Therefore, to a person of ordinary skill in the art, it is obvious that the beam splitter of Mao is performing a filtering operation.

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Claim 3

It is the position of the Office that even though the reference of Mao does not specifically disclose wherein the filter has a 0.5% reflective ratio, it does outline the importance of directing a “small percentage (3% to 5%)” (col. 2, lines 47-49) of the optical signal to the light monitoring means by way of beam splitter 125. After careful review of the Applicants disclosure, there is no critically distinguishing filter reflective ratio feature in the Applicants disclosure that exemplifies novelty over prior art disclosure. Therefore producing the same results as the Applicants limitation, therefore the reference of Mao reads on applicants claimed limitation.

Claim 4

Mao discloses wherein the first collimator 120 retains an end of the input fiber 110 and said detecting means uses said part of the input signals reflected by the filter together with said second portion of the attenuated signals from the output port to drive the driving device which moves the movable reflector (col. 3, lines 10-27).

It is the position of the Office that even though the reference of Mao does not specifically disclose a second fiber enclosed within the first collimator 110, wherein said second fiber receives a part of the input signals reflected by the filter (beam splitter 125) and transmits said part of the input signals reflected by the filter to the detecting means, it does outline the importance of directing a “small percentage (3% to 5%)” (col. 2, lines 47-49) of the optical signal to the light monitoring means by way of beam splitter 125. After careful review of the Applicants disclosure, there is no critically distinguishing feature regarding the use of a second fiber to transmit the filtered signal to the detector in the Applicants disclosure that exemplifies novelty over prior art disclosure. Therefore producing the same results as the Applicants limitation, therefore the reference of Mao reads on applicants claimed limitation. Further, it

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would have been obvious to one having ordinary skill in the art at the time the invention was made to use a optical fiber instead of free space since the Examiner takes Official notice of the equivalence of a fiber and a free space transmission for their use in the field of optical communications to transmit an optical signal and the selection of any of these known equivalents to a fiber would be within the level of ordinary skill in the art.

Claims 6 & 12

Mao discloses a light monitoring means 130; while Mao is silent as to exactly what type of light monitoring device can be used, it would have been obvious to someone of ordinary skill in the art at the time of the claimed invention that a wide variety of light monitoring devices could be used, such as a photodetector or a ccd array, as a means for monitoring the optical signal as it traversed through the optical attenuating device.

Claim 7

Mao in conjunction with Fig. 1, discloses an optical attenuator 100 for attenuating signals in an optical path, comprising an input port for receiving input signals from an input fiber 110 along the optical path and for reflecting part of the input signals to a first detecting means 130, an output port for splitting the attenuated signals into two portions, and for transmitting one portion of the attenuated signals to an output fiber 165, also along the optical path, and for transmitting a second portion of the attenuated signals to a second detecting means 130, at least one movable reflector (140 & 145) for receiving first signals output by the input port and reflecting a portion of said first signals into the output port, said first detecting means 130 being positioned to received said reflected part of the input signals from the input port, said second detecting means being positioned to receive said second portion of the attenuated signals from the output port, and a driving device (stepper motor) for driving the movable reflector (140 &

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145) in response to control signals from the first and the second detecting means (col. 2, line 40-col. 3, line 27). Applicant is particularly pointed to col. 2, lines 56-64, which give support for an output port for splitting the attenuated signals into two portions.

Mao as applied above discloses wherein the input port comprises a reflector for reflecting part of the input signal. Mao discloses the claimed invention except for reflecting means in the input port. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use reflecting means as opposed to a beam splitter since the Examiner takes Official notice of the equivalence of a reflecting means and a beam splitter for their use in the field of optical communications and the selection of any of these known equivalents to a means for reflecting part of the optical signal would be within the level of ordinary skill in the art. Further, Mao discloses directing a "small percentage" (col. 2, lines 47-49) of the optical signal to the light monitoring means by way of beam splitter 125. Therefore, to a person of ordinary skill in the art, it is obvious that the beam splitter of Mao is performing a filtering operation.

Claims 8 & 16

Mao as applied above discloses wherein the input port comprises a first collimator 120 and a filter 125 (Fig. 1). Mao discloses the claimed invention except for a filter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a filter as opposed to a beam splitter since the Examiner takes Official notice of the equivalence of a filter and a beam splitter for their use in the field of optical communications and the selection of any of these known equivalents to a filter would be within the level of ordinary skill in the art. Further, Mao discloses directing a "small percentage" (col. 2, lines 47-49) of the optical signal to

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the light monitoring means by way of beam splitter 125. Therefore, to a person of ordinary skill in the art, it is obvious that the beam splitter of Mao is performing a filtering operation.

Claim 9

It is the position of the Office that even though the reference of Mao does not specifically disclose wherein the filter has a 0.5% reflective ratio, it does outline the importance of directing a “small percentage (3% to 5%)” (col. 2, lines 47-49) of the optical signal to the light monitoring means by way of beam splitter 125. After careful review of the Applicants disclosure, there is no critically distinguishing filter reflective ratio feature in the Applicants disclosure that exemplifies novelty over prior art disclosure. Therefore producing the same results as the Applicants limitation, therefore the reference of Mao reads on applicants claimed limitation.

Claim 10

Mao discloses wherein the first collimator 120 retains an end of the input fiber 110.

It is the position of the Office that even though the reference of Mao does not specifically disclose a second fiber enclosed within the first collimator 110, wherein said second fiber receives a part of the input signals reflected by the filter (beam splitter 125), it does outline the importance of directing a “small percentage (3% to 5%)” (col. 2, lines 47-49) of the optical signal to the light monitoring means by way of beam splitter 125. After careful review of the Applicants disclosure, there is no critically distinguishing feature regarding the use of a second fiber to transmit the filtered signal to the detector in the Applicants disclosure that exemplifies novelty over prior art disclosure. Therefore producing the same results as the Applicants limitation, therefore the reference of Mao reads on applicants claimed limitation.

Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a optical fiber instead of free space since the Examiner takes Official

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notice of the equivalence of a fiber and a free space transmission for their use in the field of optical communications to transmit an optical signal and the selection of any of these known equivalents to a fiber would be within the level of ordinary skill in the art.

Claim 11

Mao as applied above further discloses wherein the output port comprises a second collimator (Fig. 1, ref. 150).

Claims 14 & 15

It is the position of the Office that even though the reference of Mao does not specifically disclose wherein one movable reflector used in conjunction with a fixed reflector to form the optical connection between the input port and the output port, it does outline the importance of using a movable mirror element in order to attenuate the system through a two mirror system (col. 2, line 65-col. 3, line 10). After careful review of the Applicants disclosure, there is no critically distinguishing fixed mirror in conjunction with only a single movable mirror feature in the Applicants disclosure that exemplifies novelty over prior art disclosure that discloses the importance of a movable mirror system to attenuate a optical signal. Therefore producing the same results as the Applicants limitation, therefore the reference of Mao reads on applicants claimed limitation.

Claim 20

Mao discloses wherein the said detecting means uses said part of the input signals reflected by the input port together with said second portion of the attenuated signals from the output port to drive the driving device which moves the movable reflector (col. 2, line 40-col. 3, line 27). Applicant is particularly pointed to col. 2, lines 56-64, which give support for an output port for splitting the attenuated signals into two portions.

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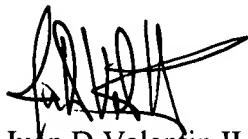
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan D Valentin II whose telephone number is (571) 272-2433.

The examiner can normally be reached on M-Th., Every other Fr..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Juan D Valentin II
Examiner 2877
JDV
March 4, 2004



Michael P. Stafira
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